

FIG. 1 is a block diagram of a system 100 for detecting a non-linear component in an output signal. The system 100 includes an input signal 10, an output signal 11, a detector 112, a detector 114, a fundamental component 113, a harmonic component 115, a comparing circuit 120, and a linearity indicating signal 125.

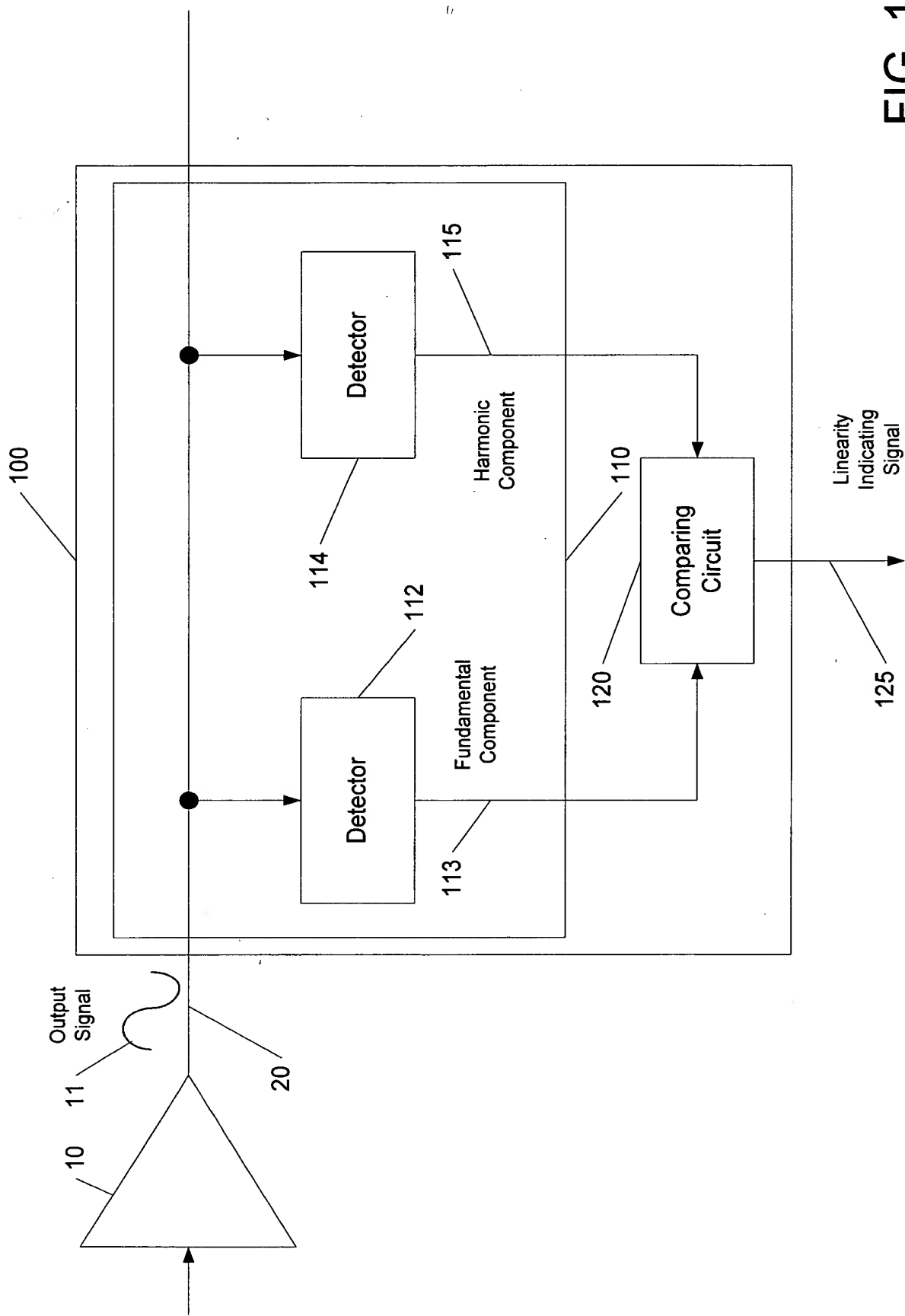


FIG. 1

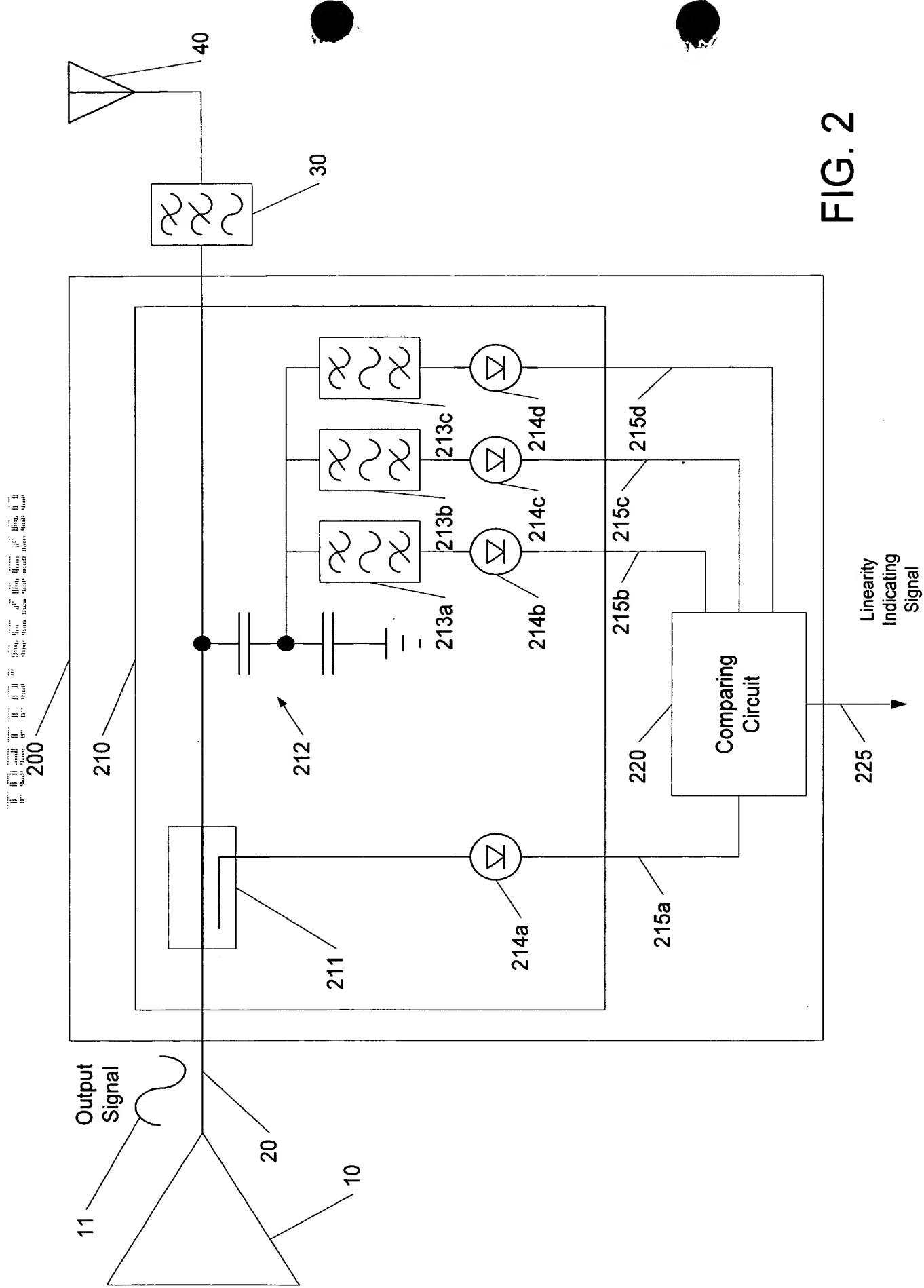


FIG. 3 is a block diagram of a system for measuring the linearity of a power amplifier. The system includes a power amplifier 10, a VSWR and/or Reflected Power Detector Circuit 50, a Comparing Circuit 320, and a Linearity Indicating Signal output 325. The power amplifier 10 is connected to an antenna 11 and a load 20. The VSWR and/or Reflected Power Detector Circuit 50 is connected to the antenna 11 and the load 20. The Comparing Circuit 320 is connected to the VSWR and/or Reflected Power Detector Circuit 50 and the Linearity Indicating Signal output 325. The system also includes a feedback loop 300 that includes a feedback network 310 and a feedback amplifier 312. The feedback network 310 is connected to the output of the power amplifier 10 and the input of the power amplifier 10. The feedback amplifier 312 is connected to the feedback network 310 and the input of the power amplifier 10. The feedback loop 300 is used to maintain the linearity of the power amplifier 10.

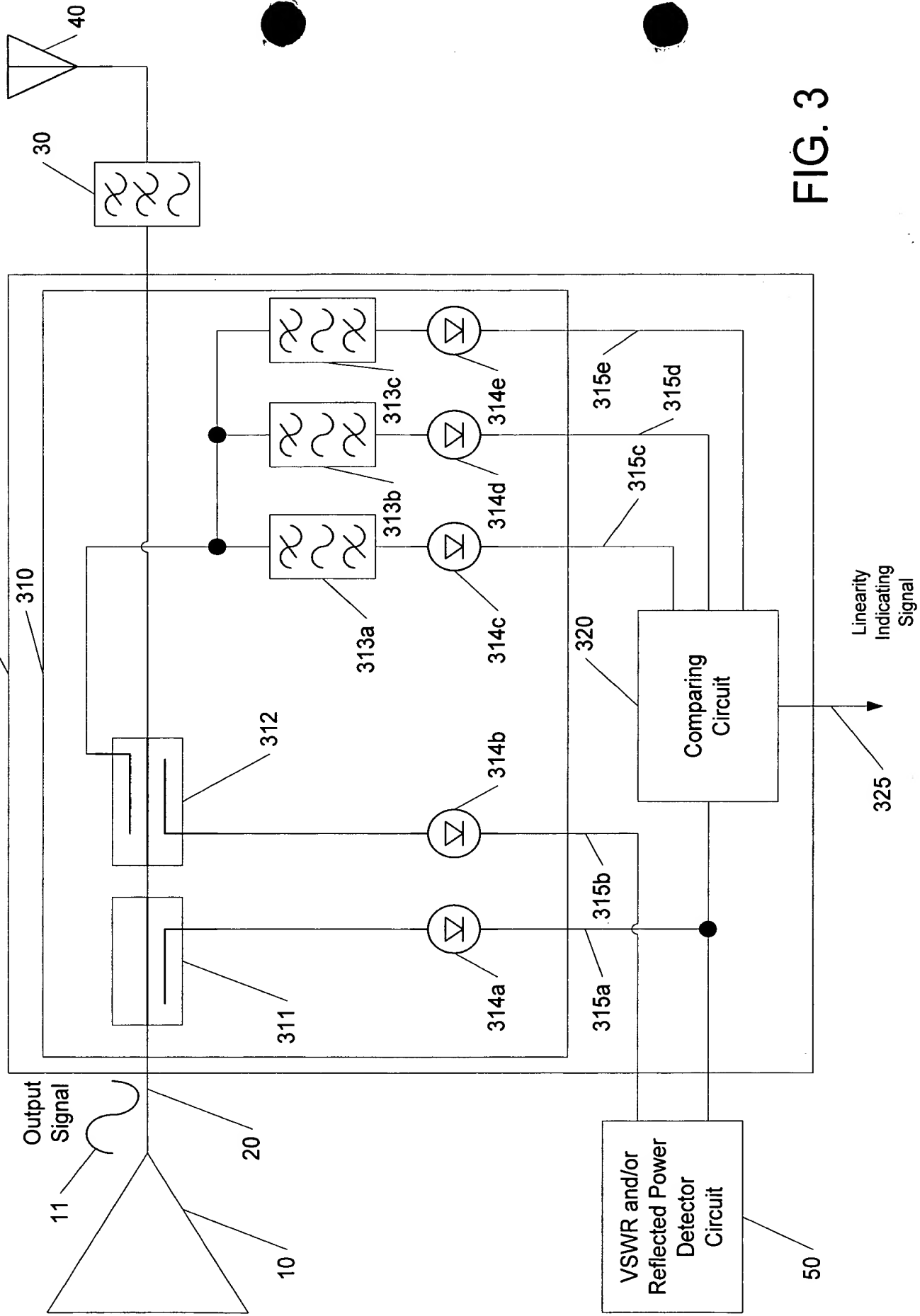


FIG. 3

FIG. 4 is a block diagram of a system 400 for measuring the linearity of a device under test (DUT) 10. The system 400 includes an input signal source 20, a DUT 10, an output signal source 11, a VSWR and/or Reflected Power Detector Circuit 50, a Comparing Circuit 420, and a Linearity Indicating Signal output 425. The DUT 10 is connected to the input signal source 20 and the output signal source 11. The output signal source 11 is connected to the VSWR and/or Reflected Power Detector Circuit 50. The VSWR and/or Reflected Power Detector Circuit 50 is connected to the Comparing Circuit 420. The Comparing Circuit 420 is connected to the Linearity Indicating Signal output 425. The system 400 also includes a feedback loop 410 that connects the output signal source 11 back to the input signal source 20. The feedback loop 410 includes a feedback signal source 30 and a feedback signal detector 40. The feedback signal source 30 is connected to the feedback signal detector 40, which is connected to the input signal source 20. The feedback signal source 30 is also connected to the VSWR and/or Reflected Power Detector Circuit 50. The VSWR and/or Reflected Power Detector Circuit 50 is connected to the Comparing Circuit 420. The Comparing Circuit 420 is connected to the Linearity Indicating Signal output 425. The system 400 also includes a feedback loop 410 that connects the output signal source 11 back to the input signal source 20. The feedback loop 410 includes a feedback signal source 30 and a feedback signal detector 40. The feedback signal source 30 is connected to the feedback signal detector 40, which is connected to the input signal source 20. The feedback signal source 30 is also connected to the VSWR and/or Reflected Power Detector Circuit 50. The VSWR and/or Reflected Power Detector Circuit 50 is connected to the Comparing Circuit 420. The Comparing Circuit 420 is connected to the Linearity Indicating Signal output 425.

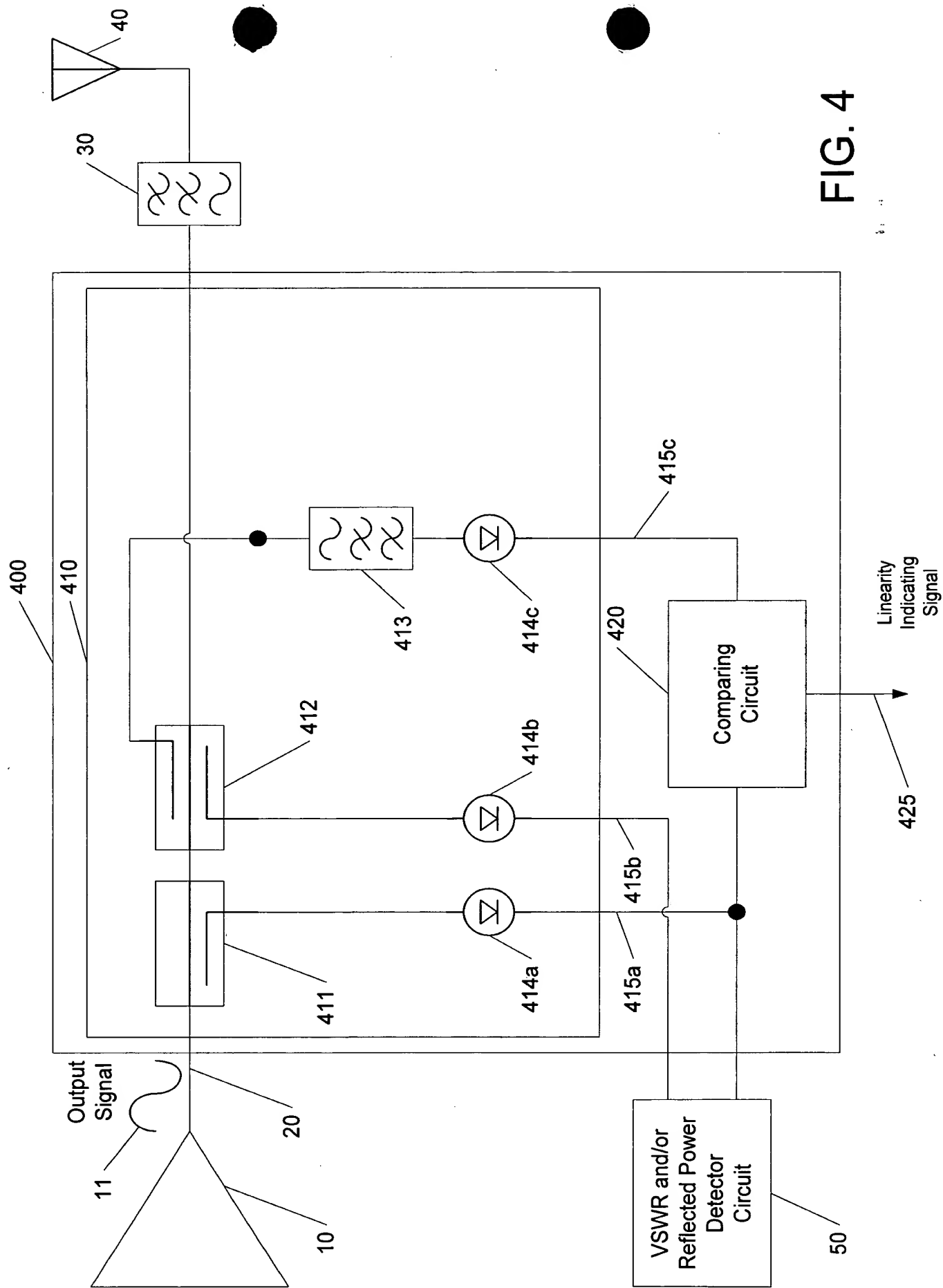


FIG. 4

FIG. 5 is a block diagram of a system for detecting a harmonic component of an output signal.

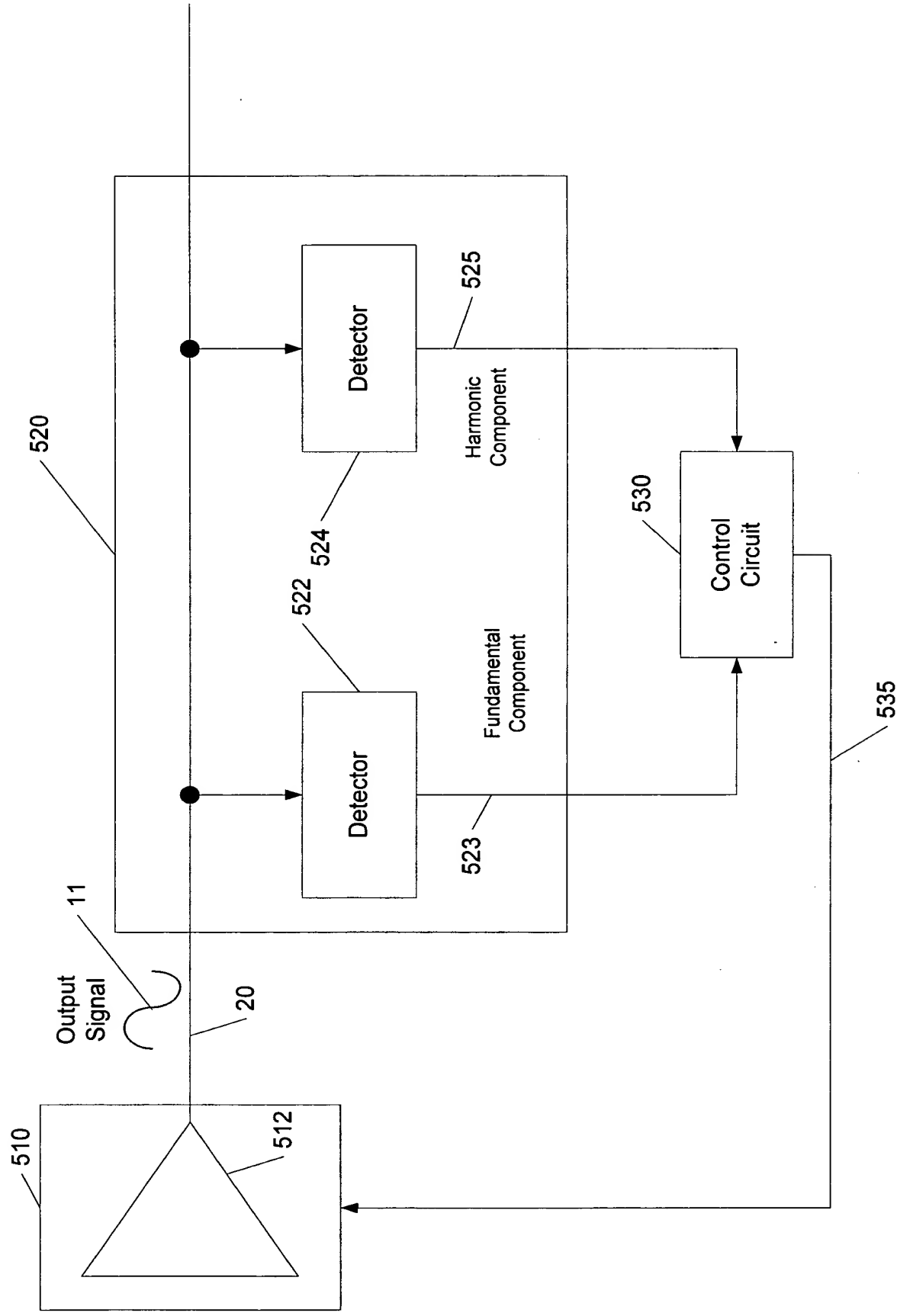
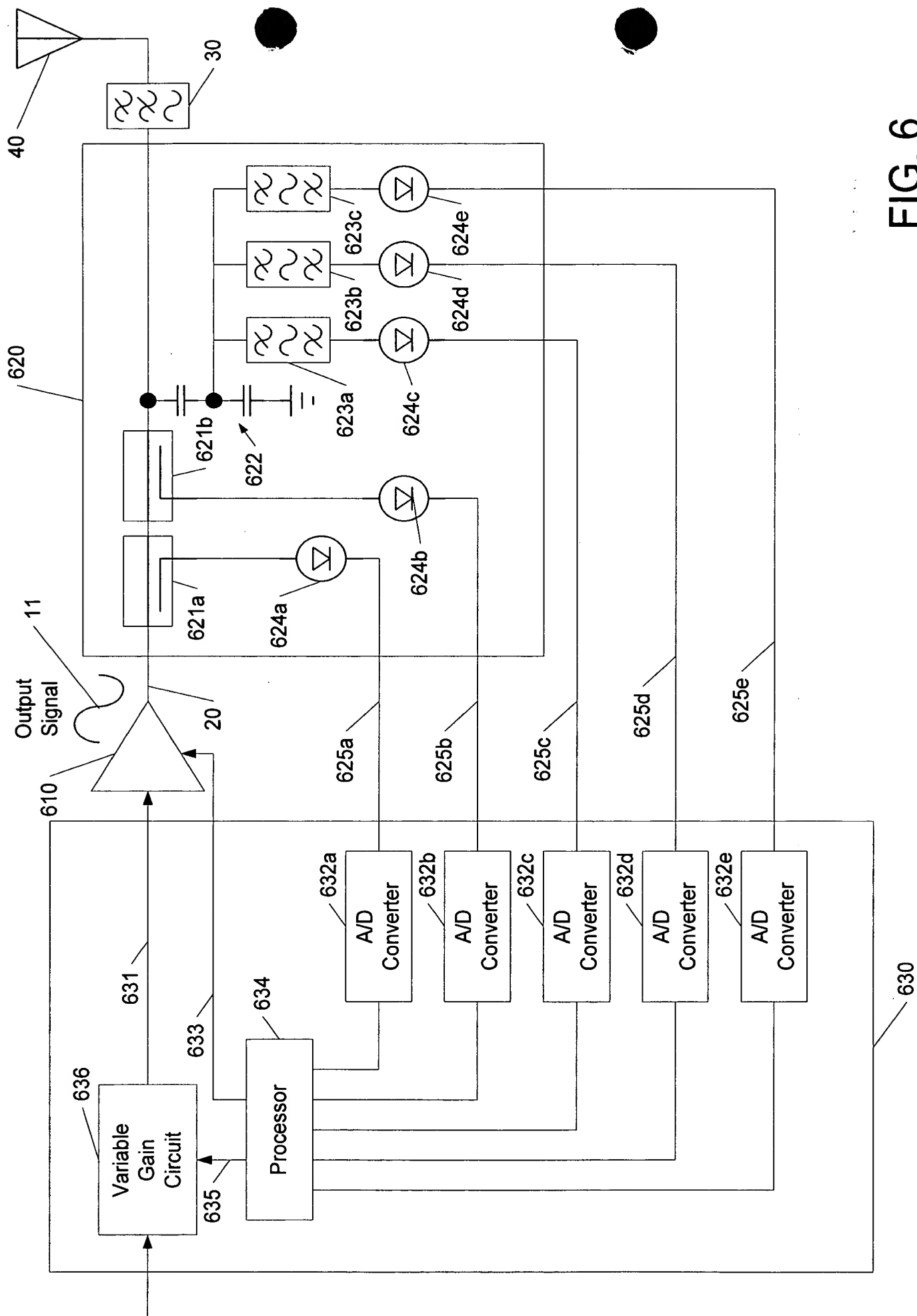


FIG. 5



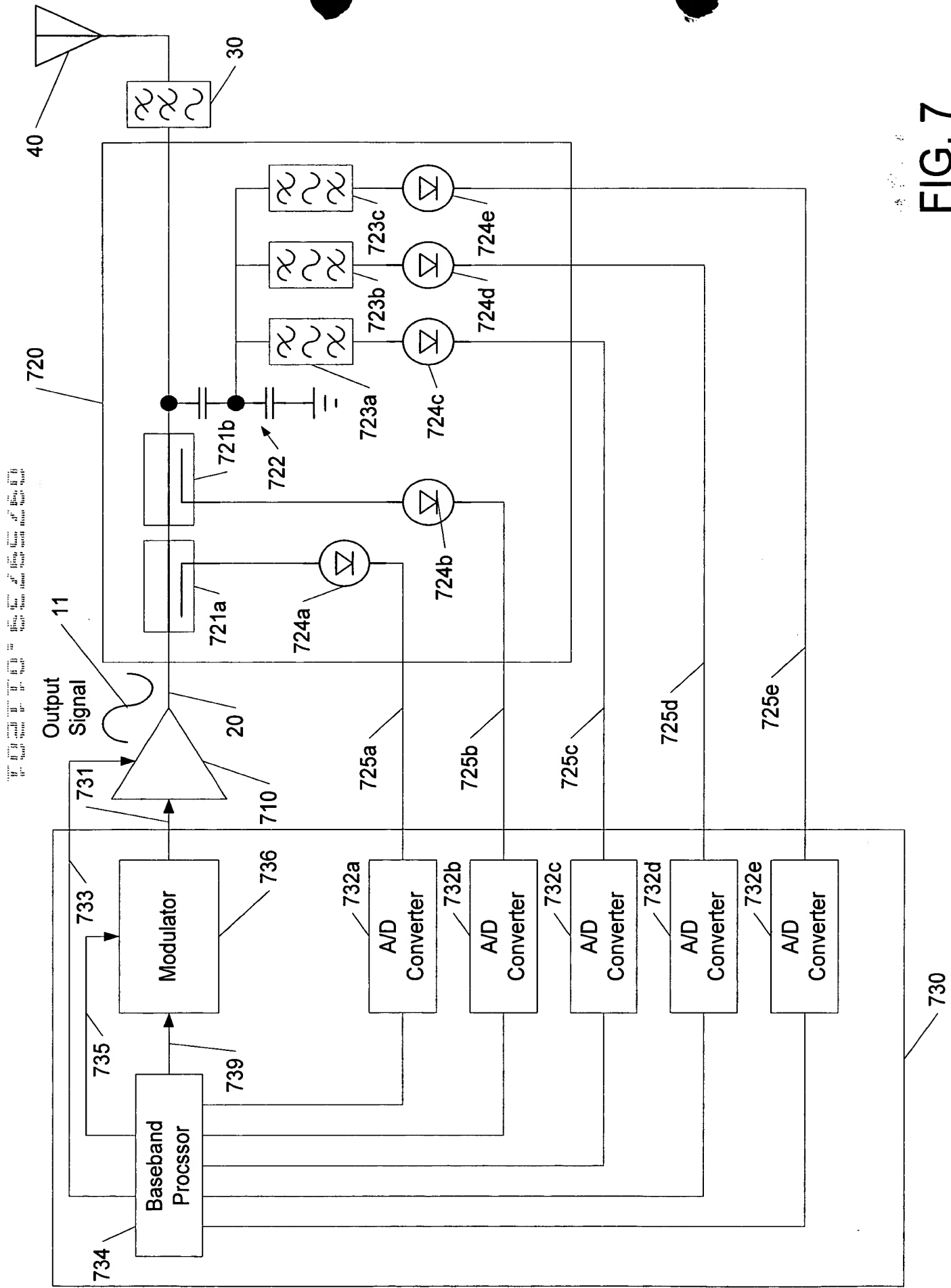


FIG. 7

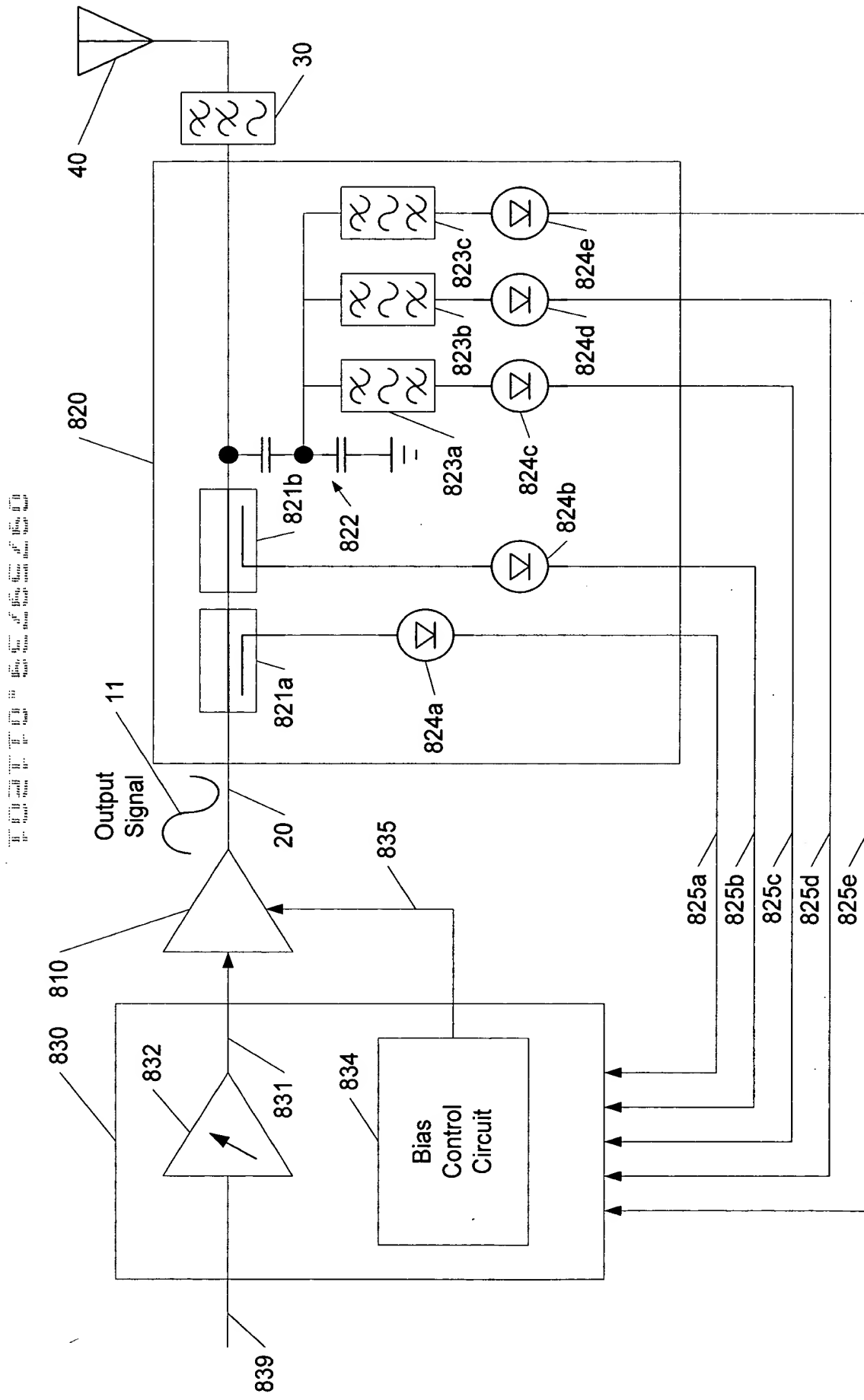


FIG. 8



FIG. 9

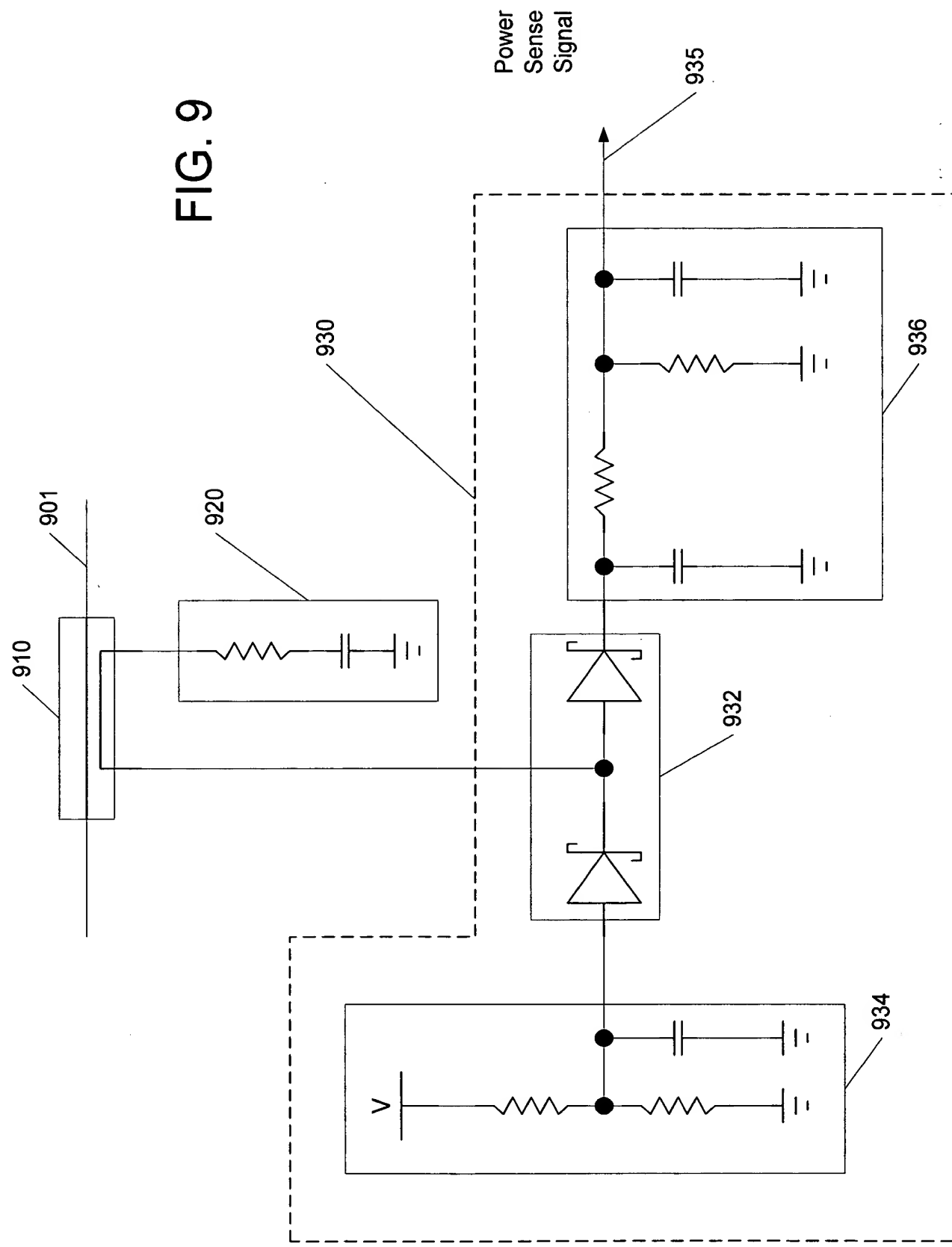


FIG. 10 is a block diagram of a power sense signal processing circuit 1000. The circuit 1000 includes a first threshold detector circuit 1010a, a second threshold detector circuit 1010b, a first comparator 1020a, a second comparator 1020b, and a third comparator 1030. The first threshold detector circuit 1010a receives a power sense signal (fundamental) 1001a and outputs a signal to the first comparator 1020a. The second threshold detector circuit 1010b receives a power sense signal (harmonic) 1001b and outputs a signal to the second comparator 1020b. The first comparator 1020a compares its input signal with a threshold and outputs a signal to the third comparator 1030. The second comparator 1020b compares its input signal with a threshold and outputs a signal to the third comparator 1030. The third comparator 1030 compares the signals from the first and second comparators and outputs a comparison signal 1005.

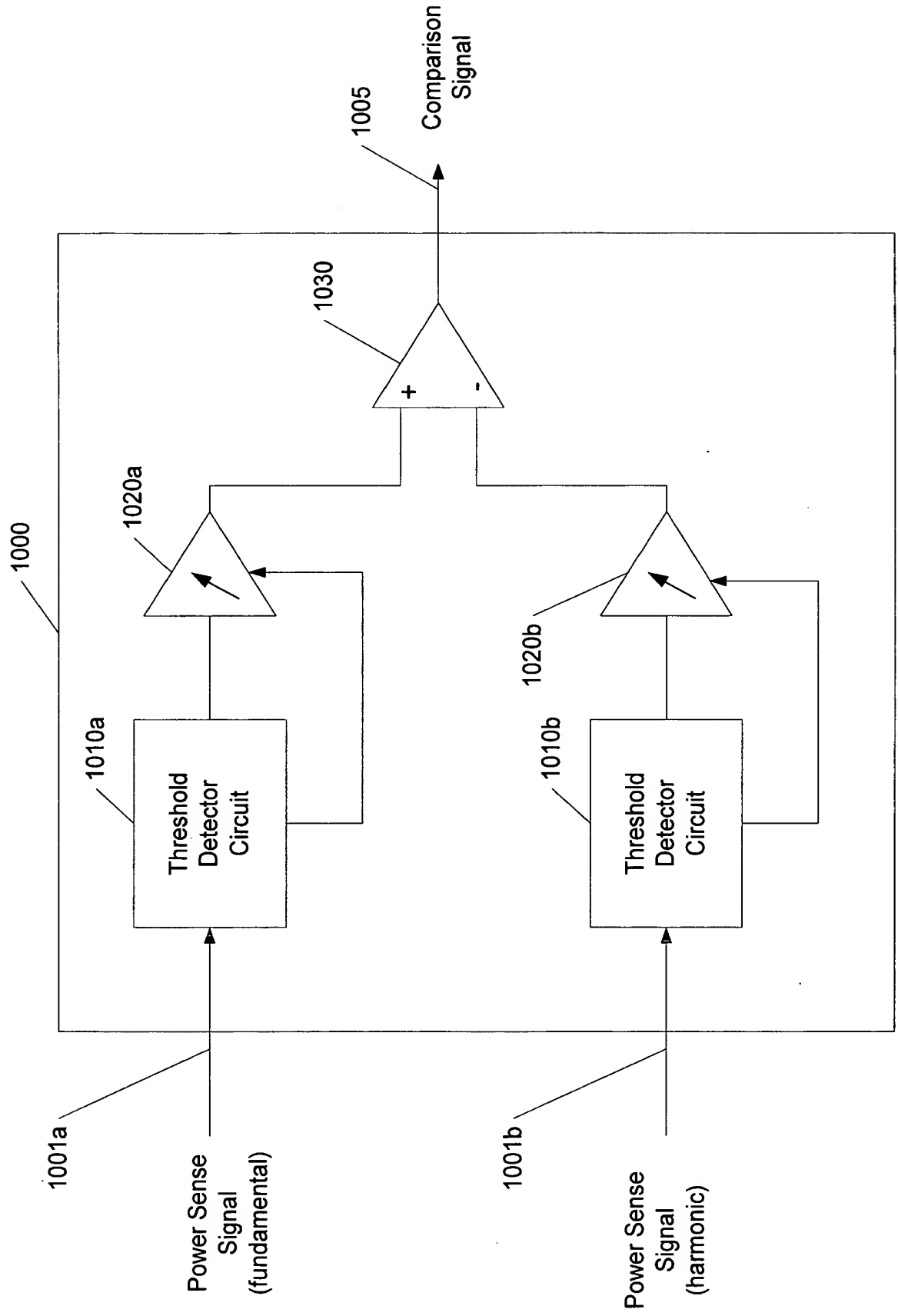


FIG. 10